

FIG. 1

ATG GCT CGC CTA CAG ACT GCA CTC GTC GTT GTC CTC CTC CTC CTT GCT GTG GCG CTT CAA

GCA ACT GAG GCA GGC CCC TAC GGC GCC AAC ATG GAA GAC AGC GTC TGC TGC CGT GAT TAC

GTC CGT TAC CGT CTG CCC CTG CGC GTG GTG AAA CAC TTC TAC TGG ACC TCA GAC TCC TGC

CCG AGG CCT GGC GTG GTG TTG CTA ACC TTC AGG GAT AAG GAG ATC TGT GCC GAT CCC AGA

GTG CCC TGG GTG AAG ATG ATT CTC AAT AAG CTG AGC CAA TGA

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AGAGCCTACTCTGATGACCGTGCCCTTGGCTCCTCCAGGAAGGCTCAGGAGCCCTACCTCCCTGCCATTATAGCTGCTC

CCCGCCAGAAAGCCTGTGCCAACTCTCTGCSATTCCTGTATCTCCATCCCTGTGGCTGTACCCCTTGGTCACTCCCTGCT

GTCAC TGCCATCTCCCCCTGACCCCTCTAACCCATCCTCTGCCTCCCTGCAGTCAGAGGGTCTGTCTCCCATCA

GCGATTCCCCCTGCTTAAACCCCTTCCATGACTCCCCCACTGCCCTAAGCTGAGGTCACTCTCCCAAGCCTGGCATGTGGCC

CTCTGGATCTGGGTTCCATTCTGTCTCCAGCCTGCCCACTTCCCTTTCATGAATGTTGGGTTCTAGCTCCCTGTTCTCTCC

AAACCCATAACACATCCCACCTTCTGGGTCTTTGGCCTGGGATGTTGCTGACACTCAGAAAGTCCCGTCGACCGCGGCC

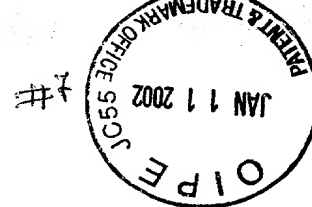


FIG. 3A-1
FIG. 3A-2
FIG. 3A-3

FIG. 3A

```
GTGGAACCCACGCGTCGCGCCGAGAACCCGCAATCTTTGCGCCACAAAATACACGACGATGCCCGATCTACTTTAAG 79
GGCTGAACCCACGCGCCTGAGAGACTATAAGAGCGTTCCTACCGCC ATG GAA CAA CGG GGA CAG AAC 148
M E Q R G Q N
A P A A S G A R K R H G P G P R E A R G 27
GCC CCG GCC GCT TCG GGG GCC CGG AAA AGG CAC GGC CCA GGA CCC AGG GAG GCG CGG GGA 208
A R P G L R V P K T L V L V A A V L L 47
GCC AGG CCT GGG CTC CGG GTC CCC AAG ACC CTT GTG CTC GTT GTC GCC GCG GTC CTG CTG 268
```

FIG. 3A-1

Applicant: Douglas A. Holtzman et al.
 Title: NOVEL GENES ENCODING PROTEINS HAVING
 PROGNOSTIC, DIAGNOSTIC, PREVENTIVE, THERAPEUTIC,
 AND OTHER USES

Attorney/Agent: Jean M. Silveri
 Docket No.: MPI2000-540OMNI(M)

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L	V	S	A	E	S	A	L	I	T	Q	Q	D	L	A	P	Q	Q	R	A	67
TTG	GTC	TCA	GCT	GAG	TCT	GCT	CTG	ATC	ACC	CAA	CAA	GAC	CTA	GCT	CCC	CAG	CAG	AGA	GCG	328
A	P	Q	Q	K	R	S	S	P	S	E	G	L	C	P	P	G	H	H	I	87
GCC	CCA	CAA	CAA	AAG	AGG	TCC	AGC	CCC	TCA	GAG	GGA	TTG	TGT	CCA	CCT	GGA	CAC	CAT	ATC	388
S	E	D	G	R	D	C	I	S	C	K	Y	G	Q	D	Y	S	T	H	W	107
TCA	GAA	GAC	GGT	AGA	GAT	TGC	ATC	TCC	TGC	AAA	TAT	GGA	CAG	GAC	TAT	AGC	ACT	CAC	TGG	448
N	D	L	L	F	C	L	R	C	T	R	C	D	S	G	E	V	E	L	S	127
AAT	GAC	CTC	CTT	TTC	TGC	TTG	CGC	TGC	ACC	AGG	TGT	GAT	TCA	GGT	GAA	GTG	GAG	CTA	AGT	508
P	C	T	T	T	R	N	T	V	C	Q	C	E	E	G	T	F	R	E	E	147
CCC	TGC	ACC	ACG	ACC	AGA	AAC	ACA	GTG	TGT	CAG	TGC	GAA	GAA	GGC	ACC	TTC	CGG	GAA	GAA	568
D	S	P	E	M	C	R	K	C	R	T	G	C	P	R	G	M	V	K	V	167
GAT	TCT	CCT	GAG	ATG	TGC	CGG	AAG	TGC	CGC	ACA	GGG	TGT	CCC	AGA	GGG	ATG	GTC	AAG	GTC	628
G	D	C	T	P	W	S	D	I	E	C	V	H	K	E	S	G	T	K	H	187
GGT	GAT	TGT	ACA	CCC	TGG	AGT	GAC	ATC	GAA	TGT	GTC	CAC	AAA	GAA	TCA	GGT	ACA	AAG	CAC	688
S	G	E	A	P	A	V	E	E	T	V	T	S	S	P	G	T	P	A	S	207
AGT	GGG	GAA	GCC	CCA	GCT	GTG	GAG	GAG	ACG	GTG	ACC	TCC	AGC	CCA	GGG	ACT	CCT	GCC	TCT	748

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FIG. 3A-2

Applicant: Douglas A. Holtzman et al.
 Title: NOVEL GENES ENCODING PROTEINS HAVING
 PROGNOSTIC, DIAGNOSTIC, PREVENTIVE, THERAPEUTIC,
 AND OTHER USES

Attorney/Agent: Jean M. Silveri
 Docket No.: MPI2000-540OMNI(M)

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P C S L S G I I I G V T V A A V V L I V	227
CCC TGT TCT CTC TCA GGC ATC ATA GGA GTC ACA GTT GCA GCC GTA GTC TTG ATT GTG	808
A V F V C K S L L W K K V L P Y L K G I	247
GCT GTG TTT GTT TCC AAG TCT TTA CTG TGG AAG AAA GTC CTT CCT TAC CTG AAA GGC ATC	868
C S G G G G D P E R V D R S S Q R P G A	267
TGC TCA GGT GGT GGT GGT GGT GGT GGT GGT GGT GGT GGT GGT GGT GGT GGT GGT	928
E D N V L N E I V S I L Q P T Q V P E Q	287
GAG GAC AAT GTC CTC AAT GAG ATC GTG AGT ATC TTG CAG CCC ACC CAG GTC CCT GAG CAG	988
E M E V Q E P A E P T G V N M L S P G E	307
GAA ATG GAA GTC CAG GAG CCA GCA GAG CCA ACA GGT GTC AAC ATG TTG TCC CCC GGG GAG	1048
S E H L L E P A E A E R S Q R R L L V	327
TCA GAG CAT CTG CTG GAA CCG GCA GAA GCT GAA AGG TCT CAG AGG AGG AGG CTG CTG GTT	1108
P A N E G D P T E T L R Q C F D D F A D	347
CCA GCA AAT GAA GGT GAT CCC ACT GAG ACT CTG AGA CAG TGC TTC GAT GAC TTT CCA GAC	1168
L V P F D S W E P L M R K L G L M D N E	367
TTG GTG CCC TTT GAC TCC TGG GAG CCG CTC ATG AGG AAG TTG GGC CTC ATG GAC AAT GAG	1228

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FIG. 3A-3

FIG. 3B-1
FIG. 3B-2
FIG. 3B-3

FIG. 3B

I	K	V	A	K	A	E	A	A	G	H	R	D	T	L	Y	T	M	L	I	387
ATA	AAG	GTG	GCT	AAA	GCT	GAG	GCA	GCG	GCG	CAC	AGG	GAC	ACC	TTG	TAC	ACG	ATG	CTG	ATA	1288
K	W	V	N	K	T	G	R	D	A	S	V	H	T	L	L	D	A	L	E	407
AAG	TGG	GTC	AAC	AAA	ACC	GGG	CGA	GAT	GCC	TCT	GTC	CAC	ACC	CTG	CTG	GAT	GCC	TTG	GAG	1348
T	L	G	E	R	L	A	K	Q	K	I	E	D	H	L	L	S	S	G	K	427
ACG	CTG	CGA	GAG	AGA	CTT	GCC	AAG	CAG	AAG	ATT	GAG	GAC	CAC	TTG	TTG	AGC	TCT	CGA	AAG	1408
F	M	Y	L	E	G	N	A	D	S	A	M	S	*							441
TTC	ATG	TAT	CTA	GAA	GGT	AAT	GCA	GAC	TCT	GCC	ATG	TCC	TAA							1450

FIG. 3B-1

GIGTGATTCTCTCAGGAAGTGAGACCTTCCCTGGTTTACCTTTTCTGGAATAAGCCCAACTGGACTCCAGTCAGTA 1529
CGAAAGTGCCACAATTGTACATGACCGGTACTCGAAGAACTCTCCCATCCAACATCACCCAGTGGATGGAACATCCT 1608
GTAACCTTCTCACTGCACTTGGCATTATTMTTATAAGCTGAATGTGATAATAAGGACACTATCGAAATGTCTCGATCATTT 1687
CCGTTTGTCCGTACTTTTGAGATTTCGGTTTGGGATGTCTATTGTTTTCACAGCACTTTTATTATCTCTAATGTAAATGCTTTA 1766
TTTATTATTTTGGGCTACATTGTAGATCCATCTACACAGTCTGTGTCCGACTTTCATCTACTATATGATATGAAC 1845
TTTTTTGGGTGGGGGTGCGGCAATTTCACCTCTGTCTCCAGGCTGGAGTGCATAATGGTGCATACTTGGCTCACTATA 1924
GCCCTGACCTCTGAGGCTCAAGCGATTCTCTCACCCTCAGCCATCCAAATAGCTGGGACACAGGTGTGCCACCACCGC 2003
CCGGCTAATTMTTGTATTMTGTCTAAATAATAAGGGCTCTCTATGTMTGCTCAGGGTGGTCTCGAAATTCCTGGACTCAAG 2082
CAGTCTGCCCCACTCAGACTCCCAAAGCGGTGGAATTAGARGCGTGAGCCCCCATGCTTGGCCCTTACCTTTCTACTYTTT 2161
TATAATCTGTAATTTATTATTATGAACATCAAGAACTTTAGTAAATGTACTTGTATTACATAGTTATGTGAATAGA 2240
TTAGATAACAATAAAGGAGGAGACATACAATGGGGGAAGAAGAAGTCCCTGTAGAAGTTNACGNTCTCGTTTC 2319

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FIG. 3B-2

CAGCCTTCCCTCAGATGTACTTTGGCTTCAATGATTGGCAACTTCTACAGGGGCCAGTCTTTTGAACCTGGACAACCTTA 2398

CAAGTATAATGAGTAATTAATTAAGGTAGTTGTTTACATATGAGTCGGGACCAAGAGAACTCGATCCAGTCAAGTCCT 2477

GTGTGTGGCTGGTCCCTACCTGGGCAGTCTCATTTTGCACCCCATAGCCCCCATCTATGGAACAGGCTGGACAGAGGCAGA 2556

TGGGTTAGATCACACATAACAAATAGGCTCTATGTCTATATCCCAAGTGAACCTGAGCCCCGTGTGGGGCTCAGGAGATAGA 2635

AGACAAAATCTGTCTCTCCACGCTCTGCCATGGCATCAAGGGGAAGAGTAGATGGTCTTGAGAAATGGTGTGAAATGGTT 2714

GCCATCTCAGGAGTAGATGGCCCGGCTCACTTCTGGTTATCTGTCACTCCCTGAGCCCCATGAGCTGCCCTTTTAGGGTACAG 2793

ATTGCCCTACTTGAGGACCTTTGGCCGCTCTGTAGCATCTGACTCATCTCAGAAATGTCAATCTTTAAACACTGTGGCAA 2872

CAGGACCTAGAATGGCTGACGCCATTAAAGGTTTTCCTTCTGTCTCTCTCTATTATTGTTTAAAGACCTCAGTAACCAT 2951

TTCAGCCTCTTTTCCAGCAACCCCTTCTCCATAGTATTTTCAGTCAATGGAAGGATCATTTTATGTCAGGTAGTCAATCCAGGA 3030

GTTTTGGTCTTTTCTGTCTCAAGGCATTGTGTGTGTTTGTTCCTGGGCTGGGCTGGGACAAAGTTAGAAATTCCTCT 3109

GAAGATCACATTCAGACTGTGTCTGTCTGGAGTTTATAGGAGTGGGGGGTGACCTTTCTCTGGTCTTTTGCACCTTCCATC 3188

CTCTCCCACTTCCATCTGGCATCCACCGGTTGTCCCTCTGCACTTCTGGAAGGCACAGGCTCTGCTGCTCTCTCTCTCTCT 3267

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FIG. 3B-3

[illegible]

FIG. 3C

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FIG. 4A-1
FIG. 4A-2
FIG. 4A-3

FIG. 4A

GTCGACCCACGGTCCGGCCGGAGAACCCGCAATCTTTGCGCCACAAATACCGAGATGCCCGCATCTACTTTAAG 79

GGCTGAACCCACGGCCCTGAGAGACTATAAGAGCGTTCCCTACCGCC ATG GAA CAA CCG GGA CAG AAC 7 148

A P A A S G A R K R H G P G P R E A R G 27

GCC CCG GCC GCT TCG GGG GCC CCG AAA AGG CAC GGC CCA GGA CCC AGG GAG GCG CCG GGA 208

A R P G L R V P K T L V L V A A V L L 47

GCC AGG CCT GGG CTC CCG GTC CCC AAG ACC CTT GTG CTC GTT GTC GCC GCG GTC CTC CTG 268

FIG. 4A-1

L	V	S	A	E	S	A	L	I	T	Q	Q	D	L	A	P	Q	Q	R	A	67
TTG	GTC	TCA	GCT	GAG	TCT	GCT	CTG	ATC	ACC	CAA	CAA	GAC	CTA	GCT	CCC	CAG	CAG	AGA	GCG	328
A	P	Q	Q	K	R	S	S	P	S	E	G	L	C	P	P	G	H	H	I	87
GCC	CCA	CAA	CAA	AAG	AGG	TCC	AGC	CCC	TCA	GAG	GGA	TTG	TGT	CCA	CCT	GGA	CAC	CAT	ATC	388
S	E	D	G	R	D	C	I	S	C	K	Y	G	Q	D	Y	S	T	H	W	107
TCA	GAA	GAC	GGT	AGA	GAT	TGC	ATC	TCC	TGC	AAA	TAT	GGA	CAG	GAC	TAT	AGC	ACT	CAC	TGG	448
N	D	L	L	F	C	L	R	C	T	R	C	D	S	G	E	V	E	L	S	127
AAT	GAC	CTC	CTT	TTC	TGC	TTG	CGC	TGC	ACC	AGG	TGT	GAT	TCA	GGT	GAA	GTG	GAG	CTA	AGT	508
P	C	T	T	T	R	N	T	V	C	Q	C	E	E	G	T	F	R	E	E	147
CCC	TGC	ACC	ACG	ACC	AGA	AAC	ACA	GTG	TGT	CAG	TGC	GAA	GAA	GGC	ACC	TTC	CGG	GAA	GAA	568
D	S	P	E	M	C	R	K	C	R	T	G	C	P	R	G	M	V	K	V	167
GAT	TCT	CCT	GAG	ATG	TGC	CGG	AAG	TGC	CGC	ACA	CGG	TGT	CCC	AGA	GGG	ATG	GTC	AAG	GTC	628
G	D	C	T	P	W	S	D	I	E	C	V	H	K	E	S	G	I	I	I	187
GGT	GAT	TGT	ACA	CCC	TGG	AGT	GAC	ATC	GAA	TGT	GTC	CAC	AAA	GAA	TCA	GGC	ATC	ATC	ATA	688
G	V	T	V	A	A	V	V	L	I	V	A	V	F	V	C	K	S	L	L	207
GGA	GTC	ACA	GTT	GCA	GCC	GTA	GTC	TTG	ATT	GTG	GCT	GTG	TTT	GTT	TGC	AAG	TCT	TTA	CTG	748

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FIG. 4A-2

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FIG. 4B-1
FIG. 4B-2
FIG. 4B-3

FIG. 4B

A	S	V	H	T	L	L	L	D	A	L	E	T	L	G	E	R	L	A	K	Q	387
GCC	TCT	GTC	CAC	ACC	CTG	CTG	GAT	GCC	TTG	GAG	ACG	CTG	GGA	GAG	AGA	CTT	GCC	AAG	CAG	1288	
K	I	E	D	H	L	L	S	S	S	G	K	F	M	Y	L	E	G	N	A	D	407
AAG	ATT	GAG	GAC	CAC	TTG	TTG	AGC	TCT	GGA	AAG	TTC	ATG	TAT	CTA	GAA	GGT	AAT	GCA	GAC	1348	
S	A	M	S	*																412	
TCT	GCC	ATG	TCC	TAA																1363	

FIG. 4B-1

GTGTGATTCCTTCAGGAAGTGAGACCTTCCCTCGTMTACCTTTTCTCGGAAAAGCCCAACTGGACTCCAGTCAGTA 1442

GGAAAGTGGCCACAAATTGTTCACATGACCCGGTACTGGAAGAAACTCTCCCATCCAACATCACCCAGTGGATGGAACATCCT 1521

GTAACCTTTCACCTGACCTTGGCAATTATTTTATTAAGCTGAATGTGATAATAAGGACACTATGGAATAATGTCTGGATCAATT 1600

CCGTTTGTGCGTACTTTTGAGATTGTGGTTTTTGGGATGTCTATTGTTTCACAGCACTTMMTATTCCTAAATGTAAATGCTTTTA 1679

TTTATTTTATTTTGGGCTACATTGTGAATCATCTACACAGTCGTGTGTCGCACTTTCACCTTGTACTATATGATATGAAC 1758

TTTTTGGGTGGGGTGCNGGGCAATTCCACTCTCTCTCCAGGCTGGAGTGCATGTTGCCAATCTTTGGCTCACTATA 1837

GCCTTGACCTCTGAGGCTCAAGCGATTCTCTCACCCTCAGCCATCCAAATAGCTGGGACCAAGGTGTGCACCACCCGCC 1916

CCGGCTAATTTTGTGTTTGTCTAAATAATAAGGGCTCTCTATGTTGCTCAGGGTGGTCTCGAATTCCTGGACTCAAG 1995

CAGTCTGCCCCACYTTCAGACTTCCCAAAGCGGTGGAAATTAGARGCGTGAGCCCCCATGCTTGGCCCTTACCTTCTACCTTT 2074

TATAATTCTGTATGTTTATTTTATGAACATGAAGAAACTTTTAGTAAATGTACTTGTGTTTACATAGTTATGTGAATAGA 2153

TTAGATAACATAAAAGGAGGAGACATACAAATGGGGGAAGAAGAAGTCCCTCTGTAGAAGTNNACGNTCTGGTTTC 2232

CAGCCTTCCCTCAGATGTACTTTGGCTTCAATGATTGGCAACTTCTACAGGGGCCAGTCTMTTGAAGTGGACACCTTA 2311

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FIG. 4B-2

CAAGTATATGAGTATTATTATAGGTAGTGTGTTTACATATGAGTCGGGACCAAGAGAACTGGATCCACGTGAAGTCCT 2390

GTGTGTGGCTTGGTCCCTACCTGGGCAGTCTCAATTTCACCCCATAGCCCCCATCTATGACACAGCTGGACAGAGGCAGA 2469

TGGGTTAGATCACACATAACAAATAGGGTCTATGTCTATATCCCAAGTGAACCTTGAGCCCTGTGTTGGGCTCAGGAGATAGA 2548

AGACAAAATCTGTCTCCACGCTCTGCCATGGCATCAAGGGGGAAGAGTAGATGGTCTTGAGAAATGGTGTGAAATGGTT 2627

GCCATCTCAGGAGTAGATGGCCCCGGCTCACTTCTGGTTATCTGTCACTCCCTGAGCCCATGAGCTGCCCTTTTAGGGTACAG 2706

ATTGCCCTACTTTCAGGACCTTTGGCCCGCTCTGTAAAGCATCTGACTCATCTCAGAAAATGTCAAATTCCTTAAACACTGTGGCAA 2785

CAGGACCTAGAATGGCTCAGGCATTAAAGGTTTCTTCTGTCTGTCCTGTTCTATTTATTTTAAAGACCTCAGTAACCAT 2864

TTTCAGCCTCTTTTCCAGCAACCCCTTCTCCATAGTATTTTCAGTCAATGGAAGGATCAATTTATGCCAGGTAGTCAATCCAGCA 2943

GTTTTTGGTCTTTTCTGCTCAAGGCATTGTGTGTGTTTGTGTTCCGGGACTGGTTTGGGTGGGACAAAGTTAGAAATTGCCCT 3022

GAAGATCACACATTCAGACTGTGTGTGTCGTGGAGTTTTCAGGTGGGGGTGACCTTTCCTGGTCTTTTCGCACTTCCATC 3101

CTCTCCCACTTCCATCTGGCATCCCAACCGTTGTCTCCCTCTGCACTTCTGGAAGCCACAGGGTCTGCTGCCCTCCTGGTCT 3180

TTGCCCTTTCCTGGGCTTCTGTCCAGGAGGCTTTCAGGCTCAGGCTCAGAGGTGCCAGTCCCGTCCAGGTCCTCCCTTGTCT 3259

3338 CCTTCCACAGAGGCCTTCCTAGAAAGATGCCATCTAGAGTGTGACGCCTTATCAGTGTGTTAAGATTTCCTTTTATTATTAA
3417 TTTTTTYTGACACAGAAATCTCTCATCTCTCTGGCCAGGCTGGAGTGCAACGGTACCATCTTGGCTCAGTGCACCTCCGCCCT
3496 CCTGGGTTCAAGCGATTCTCTGTGCTCAGCCTTCGGAGTAGCTGGGATTGCAGGCACCCGCCACCAAGCCTCGTTAAATT
3575 TTTGTATTTTTGTAGACACGGGGTTTTCACCAATGTTGGTCAGGCTGGTCTCGGAATCTCCTGACCTCAGGTGATCCACCTT
3654 GGCCTCCGAAAGTGGATTACAGGGGTGAGCCACAGCCAGGCCAAGCTATTCCTTTTAAAGTAAGCTTCTCTGACGA
3733 CATGAAATAATTGGGGGTTTTGTGTGTATTAGTTACATTAGGCTTTGCTATATCCCCAGGCCAAATAGCATGTGACACAGG
3812 ACAGCCATAGTATAGTGTCTACTCTGGTGTGGTGTCTCTTTCATGCTTCTGGCCCTGTCAAGGTCCTTATTTCGAAATGT
3891 GTTATAATACAAACAAGCAACATTTGTGTACAAATACTTTATGTAATTATGAAATCCATGACCAAATTAATAATGAAA
3964 CCTTATATAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAGGGGGGGGGGGGG

FIG. 4C

FIG. 5A-1
FIG. 5A-2
FIG. 5A-3

FIG. 5A

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CCACGCGTCGCGCGCGCGCTGCGCTGAGGGACGGCGGAGGGCGGCTGGCCTCGCACTCAAGCCCGCCGAGCGC 79

GCCCCGGCTCGGCGCGACCCCGGGGATCTAGGGTGGCGGACTTCGCGGACCGTGGCCCATGTTTCCTGGGAGTTA 158

CTGATCATCTCTTTGAAGAAC ATG AAG TTA CAC TAT GTT GCT GTG CTT ACT CTA GCC ATC CTG 223

M F L T W L P E S L S C N K A L C A S D 34
ATG TTC CTG ACA TGG CTT CCA GAA TCA CTG AGC TGT AAC AAA GCA CTC TGT GCT AGT GAT 283

FIG. 5A-1

Applicant: Douglas A. Holtzman et al.
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 PROGNOSTIC, DIAGNOSTIC, PREVENTIVE, THERAPEUTIC,
 AND OTHER USES

Attorney/Agent: Jean M. Silveri
 Docket No.: MPI2000-540OMNI(M)

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V S K C L I Q E L C Q C R P G E G N C S	54
GTG AGC AAA TGC CTC ATT CAG GAG CTC TGC CAG TGC CGG CCG GGA GAA GGC AAT TGC TCC	343
C C K E C M L C L G A L W D E C C D C V	74
TGC TGT AAG GAG TGC ATG CTG TGT CTT GGG CCC CTT TGG GAC GAG TGC TGT GAC TGT GTT	403
G M C N P R N Y S D T P P T S K S T V E	94
GGT ATG TGT AAT CCT CGA AAT TAT AGT GAC ACA CCT CCA ACT TCA AAG AGC ACA GTG GAG	463
E L H E P I P S L F R A L T E G D T Q L	114
GAG CTG CAT GAA CCG ATC CCT TCT CTC TTC CCG GCA CTC ACA GAA GGA GAT ACT CAG TTG	523
N W N I V S F P V A E E L S H H E N L V	134
AAT TGG AAC ATC GTT TCT TTC CCT GTT GCA GAA GAA CTT TCA CAT GAG AAT CTG GTT	583
S F L E T V N Q P H H Q N V S V P S N N	154
TCA TTT TTA GAA ACT GTG AAC CAG CAC CCA CAG AAT GTG TCT GTC CCC AGC AAT AAT	643
V H A P Y S S D K E H M C T V V Y F D D	174
GTT CAC GCG CCT TAT TCC AGT GAC AAA GAA CAC ATG TGT ACT GTG GTT TAT TTT GAT GAC	703
C M S I H Q C K I S C E S M G A S K Y R	194
TGC ATG TCC ATA CAT CAG TGT AAA ATA TCC TGT GAG TCC ATG GGA GCA TCC AAA TAT CGC	763

FIG. 5A-2

W	F	H	N	A	C	C	E	C	I	G	P	E	C	I	D	Y	G	S	K	214
TGG	TTT	CAT	AAT	GCC	TGC	TGC	GAG	TGC	ATT	GGT	CCA	GAA	TGT	ATT	GAC	TAT	GGT	AGT	AAA	823
T	V	K	C	M	N	C	M	F	*											224
ACT	GTC	AAA	TGT	ATG	AAC	TGC	ATG	TTT	TAA											853
AGA	AGACAAATGCA	AAACCAAGCAACTTAGTAA	ATAATAGGTATA	AAAAAGTTATCTGTAAGTCTGTG	GTGTTATCT															932
TGTATCAGAA	TCCAGTAAGTTAAGTTGTAAAGAC	TTTGGAATAGTTTCTTTTAA	AAATATGACATAGCCAGTGATGT																	1011
GTTTAA	TATAACTGTCTTACTGATTTTATTTGCC	CCCCCTAGCAATAAGCCCTTTCCTTTTGA	ATACATGTACAACTTT																	1090
GGTCATATGAGA	AGCAGGTGCGCAGAGAATTCCTTGA	AAGATCTGAGGTTTTTAACATGAAGTCTGATGTG	TTTTCCT																	1169
CTAGCATTC	CAAAAGGTTTTGCTTTGAAAGTGTTAGC	AGCATGTTGATGTGAATTATGATTTCTTCATGTGCTAC																		1248
TGTTAGCAC	ACTGAGTTTTATAGTTGCCACATCATTCCTCATTTGTC	CTTGTTTATCCATTTTATAAATAGAGTAGAT																		1327
ATTTGATATAC	CACTCTGATAACTCATATAAAATATCATCATATA	AAAGCTTAATTTTCATCCCTTTTATGTTGGTTT																		1406
AAAGGTAA	ATGCTTACCATAATTTTATAATTTGAGAACTCTT	ACATAGTAGAATCCATTTCTATAATACATGTTGACAAA																		1485
GCTTTAGAGAA	AGTTTTCCTATTCTCTTCCATTTTCCCTG	CCCAAGTCTGACATAGGCAGTGATGAAGAATCTTTTACC																		1564

FIG. 5A-3

Applicant: Douglas A. Holtzman et al.
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Docket No.: MPI2000-540OMNI(M)

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AAGATTTCAGGGGTACCTA1GAAATTGCTTTAAATGCACCTGCTGGTGTAATAATTAGCAAGCAAAGCGTTTCTGT	1643
GACTTCAGGTACCAGCTTAAAGAGCACTAGGGATGGGAACGAATGCCAAATCAGACTCCACCTAGAGCACCAAGAAAC	1722
AGCTTGTAACCTGGTAGGAAATGGTGTGCTGAAAGGGAGGCTGAGCCAGTCCGAGACTGAACTTGTGTCAGCCCTTAG	1801
CCAAGACAAAGCAGTGTCTTTCAGCAGACGGCTGATGGGACAGGAATTGAAGAAGAGAAATTGACTCGTATGAACACAGGAC	1880
AGGGTGAAAATGCTGGGAATTATAATCGGAAACAAACTATCTATGTTTCATATTTTGTAAATATTTTCATTTTGAAGTTT	1959
ATATCTGGATATAATGTTCTTTTTTAAACAAGTATAATCATATCGTCCGAGGTTAAGATTATGAATTTTAGAATCTCTA	2038
TTCAAGATGATGTTCACTCCAAATACACTACAGAATTTTAGTCAACATTTTATATAATGTTTCAATAAATGTTTCTTTCA	2117
ATAAAAAAAAAAAAAA	2135

FIG. 5B

D	E	T	W	H	P	D	L	G	E	P	F	G	V	M	R	C	V	L	C	80
GAC	GAG	ACG	TGG	CAC	CCG	GAC	CTA	GGG	GAG	CCA	TTC	GGG	GTG	ATG	CGC	TGC	GTG	CTG	TGC	240
A	C	E	A	P	Q	W	G	R	R	T	R	G	P	G	R	V	S	C	K	100
GCC	TGC	GAG	GCG	CCT	CAG	TGG	GGT	CGC	CGT	ACC	AGG	GGC	CCT	GGC	AGG	GTC	AGC	TGC	AAG	300
N	I	K	P	E	C	P	T	P	A	C	G	Q	P	R	Q	L	P	G	H	120
AAC	ATC	AAA	CCA	GAG	TGC	CCA	ACC	CCG	GCC	TGT	GGG	CAG	CCG	CGC	CAG	CTG	CCG	GGA	CAC	360
C	C	Q	T	C	P	Q	E	R	S	S	S	E	R	Q	P	S	G	L	S	140
TGC	TGC	CAG	ACC	TGC	CCC	CAG	GAG	CGC	AGC	AGT	TCG	GAG	CGG	CAG	CCG	AGC	GGC	CTG	TCC	420
F	E	Y	P	R	D	P	E	H	R	S	Y	S	D	R	G	E	P	G	A	160
TTC	GAG	TAT	CCG	CGG	GAC	CCG	GAG	CAT	CGC	AGT	TAT	AGC	GAC	CGC	GGG	GAG	CCA	GGC	GCT	480
E	E	R	A	R	G	D	G	H	T	D	F	V	A	L	L	T	G	P	R	180
GAG	GAG	CGG	GCC	CGT	GGT	GAC	GGC	CAC	ACG	GAC	TTC	GTG	GCG	CTG	CTG	ACA	GGG	CCG	AGG	540
S	Q	A	V	A	R	A	R	V	S	L	L	R	S	S	L	R	F	S	I	200
TGG	CAG	GCG	GTG	GCA	GCA	GCC	GCA	GTC	TCG	CTG	CTG	CGC	TCT	AGC	CTC	CGC	TTC	TCT	ATC	600
S	Y	R	R	L	D	R	P	T	R	I	R	F	S	D	S	N	G	S	V	220
TCC	TAC	AGG	CGG	CTG	GAC	CGC	CCT	ACC	AGG	ATC	CGC	TTC	TCA	GAC	TCC	AAT	GGC	AGT	GTC	660

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FIG. 6A-2

L F E H P A A P T Q D G L V C G V W R A 240
 CTG TTT GAG CAC CCT GCA GCC CCC ACC CAA GAT GGC CTG GTC TGT GGG GTG TGG CGG GCA 720

V P R L S L R L L L R A E Q L H V A L V T 260
 GTG CCT CGG TTG TCT CTG CGG CTC CTT AGG GCA GAA CAG CTG CAT GTG GCA CTT GTG ACA 780

L T H P S G E V W G P L I R H R A L A A 280
 CTC ACT CAC CCT TCA GGG GAG GTC TGG GGG CCT CTC ATC CGG CAC CGG GCC CTG GCT GCA 840

E T F S A I L T L E G P P Q Q G V G G I 300
 GAG ACC TTC AGT GCC ATC CTG ACT CTA GAA GGC CCC CCA CAG CAG GGC GTA GGG GGC ATC 900

T L L T L S D T E D S L H F L L L F R G 320
 ACC CTG CTC ACT CTC AGT GAC ACA GAG GAC TCC TTG CAT TTT TTG CTG CTC TTC CGA GGG 960

L L E P R S G G L T Q V P L R L Q I L H 340
 CTG CTG GAA CCC AGG AGT GGG GGA CTA ACC CAG GTT CCC TTG AGG CTC CAG ATT CTA CAC 1020

Q G Q L L R E L Q A N V S A Q E P G F A 360
 CAG GGG CAG CTA CTG CGA GAA CTT CAG GCC AAT GTC TCA GCC CAG GAA CCA GGC TTT GCT 1080

E V L P N L T V Q E M D W L V L G E L Q 380
 GAG GTG CTG CCC AAC CTG ACA GTC CAG GAG ATG GAC TGG CTG CTG GGG GAG CTG CAG 1140

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FIG. 6A-3

FIG. 6B-1
FIG. 6B-2
FIG. 6B-3

FIG. 6B

M	A	L	E	W	A	G	R	P	G	L	R	I	S	G	H	I	A	A	R	400
ATG	GCC	CTG	GAG	TGG	GCA	GGC	AGG	CCA	GGG	CTG	CGC	ATC	AGT	GGA	CAC	ATT	GCT	GCC	AGG	1200
K	S	C	D	V	L	Q	S	V	L	C	G	A	D	A	L	I	P	V	Q	420
AAG	AGC	TGC	GAC	GTC	CTG	CAA	AGT	GTC	CTT	TGT	GGG	GCT	GAT	GCC	CTG	ATC	CCA	GTC	CAG	1260
T	G	A	A	G	S	A	S	L	T	L	L	G	N	G	S	L	I	Y	Q	440
ACG	GGT	GCT	GCC	GGC	TCA	GCC	AGC	CTC	ACG	CTG	CTA	GGA	AAT	GGC	TCC	CTG	ATC	TAT	CAG	1320

FIG. 6B-1

CGT T T G G G G T T G G G

V Q V V G T S S E V V A M T L E T K P Q 460
GTG CAA GTG GTA GGG ACA AGC AGT GAG GTG GTG GGC ATG ACA CTG GAG ACC AAG CCT CAG 1380

R R D Q R T V L C H M A G L Q P G G H T 480
CGG AGG GAT CAG CGC ACT GTC CTG TGC CAC ATG GCT GGA CTC CAG CCA GGA GGA CAC ACG 1440

A V G I C P G L G A R G A H M L L Q N E 500
GCC GTG GGT ATC TGC CCT GGG CTG GGT GCC CGA GGG GCT CAT ATG CTG CTG CAG AAT GAG 1500

L F L N V G T K D F P D G E L R G H V A 520
CTC TTC CTG AAC GTG GGC ACC AAG GAC TTC CCA GAC GGA GAG CTT CGG GGG CAC GTG GCT 1560

A L P Y C G H S A R H D T L S V P L A G 540
GCC CTG CCC TAC TGT GGG CAT AGC GCC CAT GAC ACC CTG TCC GTG CCC CTA GCA GGA 1620

A L V L P P V K S Q A A G G A GCA GCA GGC CAC GCC TGG CTT TCC TTG GAT 560
GCC CTG GTG CTA CCC CCT GTG AAG AGC CAA GCA GCA GGC CAC GCC TGG CTT TCC TTG GAT 1680

T H C H L H Y E V L L A G L G G S E Q G 580
ACC CAC TGT CAC CTG CAC TAT GAA GTG CTG CTG GCT GGG CTT GGT GGC TCA GAA CAA GGC 1740

T V T A H L L G P P G T P G P R R L L K 600
ACT GTC ACT GCC CAC CTC CTT GGG CCT CCT GGA ACC CCA GGG CCT CGG CGG CTG CTG AAG 1800

FIG. 6B-2

Applicant: Douglas A. Holtzman et al.
 Title: NOVEL GENES ENCODING PROTEINS HAVING
 PROGNOSTIC, DIAGNOSTIC, PREVENTIVE, THERAPEUTIC,
 AND OTHER USES

Attorney/Agent: Jean M. Silveri
 Docket No.: MPI2000-540OMNI(M)

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G	F	Y	G	S	E	A	Q	G	V	V	K	D	L	E	P	E	L	L	R	620
GGA	TTC	TAT	GGC	TCA	GAG	GCC	CAG	GGT	GTG	GTG	AAG	GAC	CTG	GAG	CCG	GAA	CTG	CTG	CGG	1860
H	L	A	K	G	M	A	S	L	M	I	T	T	K	G	S	P	R	G	E	640
CAC	CTG	GCA	AAA	GGC	ATG	GCC	TCC	CTG	ATG	ATC	ACC	ACC	AAG	GGT	AGC	CCC	AGA	GGG	GAG	1920
L	R	G	Q	R	R	T	V	I	C	D	P	V	V	C	P	P	P	S	C	660
CTC	CGA	GGG	CAG	AGA	CGA	ACG	GTG	ATC	TGT	GAC	CCG	GTG	GTG	TGC	CCA	CCG	CCC	AGC	TGC	1980
P	H	P	V	Q	A	P	D	Q	C	C	P	V	C	P	E	K	Q	D	V	680
CCA	CAC	CCG	GTG	CAG	GCT	CCC	GAC	CAG	TGC	TGC	CCT	GTT	TGC	CCT	GAG	AAA	CAA	GAT	GTC	2040
R	D	L	P	G	L	P	R	S	R	D	P	G	E	G	C	Y	F	D	G	700
AGA	GAC	TTG	CCA	GGG	CTG	CCA	AGG	AGC	CGG	GAC	CCA	GGA	GAG	GGC	TGC	TAT	TTT	GAT	GGT	2100
D	R	S	W	R	A	A	G	T	R	W	H	P	V	V	P	P	F	G	L	720
GAC	CGG	AGC	TGG	CGG	GCA	GGC	GGT	ACG	CGG	TGG	CAC	CCC	GTT	GTG	CCC	CCC	TTT	GGC	TTA	2160
I	K	C	A	V	C	T	C	K	G	G	T	G	E	V	H	C	E	K	V	740
ATT	AAG	TGT	GCT	GTC	TGC	ACC	TGC	AAG	GGG	GGC	ACT	GGA	GAG	GTG	CAC	TGT	GAG	AAG	GTG	2220
Q	C	P	R	L	A	C	A	Q	P	V	R	V	N	P	T	D	C	C	K	760
CAG	TGT	CCC	CGG	CTG	GCC	TGT	GCC	CAG	CCT	GTG	CGT	GTC	AAC	CCC	ACC	GAC	TGC	TGC	AAA	2280

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FIG. 6B-3

FIG. 6C-1
FIG. 6C-2

FIG. 6C

Q	C	P	V	G	S	G	A	H	P	Q	L	G	D	P	M	Q	A	D	G	780
CAG	TGT	CCA	GTG	GGG	TCG	GGG	GCC	CAC	CCC	CAG	CTG	GGG	GAC	CCC	ATG	CAG	GCT	GAT	GGG	2340
P	R	G	C	R	F	A	G	Q	W	F	P	E	S	Q	S	W	H	P	S	800
CCC	CGG	GGC	TGC	CGT	TTT	GCT	GGG	CAG	TGG	TTC	CCA	GAG	AGT	CAG	AGC	TGG	CAC	CCC	TCA	2400
V	P	P	F	G	E	M	S	C	I	T	C	R	C	G	A	G	V	P	H	820
GTG	CCC	CCT	TTT	GGA	GAG	ATG	AGC	TGT	ATC	ACC	TGC	AGA	TGT	GGG	GCA	GGG	GTG	CCT	CAC	2460

FIG. 6C-1

C	E	R	D	D	C	S	L	P	L	S	C	G	S	G	K	E	S	R	C	840
TGT	GAG	CGG	GAT	GAC	TGT	TCA	CTG	CCA	CTG	TCC	TGT	GGC	TCG	GGG	AAG	GAG	AGT	CGA	TGC	2520
C	S	R	C	T	A	H	R	R	P	A	P	E	T	R	T	D	P	E	L	860
TGT	TCC	CGC	TGC	ACG	GCC	CAC	CGG	CGG	CCA	GCC	CCA	GAG	ACC	AGA	ACT	GAT	CCA	GAG	CTG	2580
E	K	E	A	E	G	S	*													868
GAG	AAA	GAA	GCC	GAA	GCC	TCT	TAG													2604
GGAGCAGCCAGGGCC	AAGTGACCAAGAGGATGGGCGCTGAGCTGGGGAAGGGTGGCATCGAGGACCTTCTTGCATT	2683																		
CTCCTGTGGGAAGCC	AGTGCCCTTGTGCTCCTCTGTCTGCTCTACTCCACCCCTACTACCTTTGGGAACACAGCTC	2762																		
CACAAGGGGAGAGG	CAGCTGGGCCAGACGAGGTACAGCCACTCCAAGTCCCTGCCCTGCCCTCTGTCTC	2841																		
TTGGAAAGCCCCAC	CCCTTTCCTCTGTACATAATGTCACTGGCTGTGTGGGATTTTAAATTTATCTTCACTCAGCACCA	2920																		
AGGGCCCCCGAC	ACTCCACTCCTGCTGCTGCCCTGAGCTGAGCAGAGTCATTATTGGAGAGTTTGTATTATTAAACAT	2999																		
TTCTTTTTCAGTCA	AAAAAAGGGGGGGG	3037																		

FIG. 6C-2

FIG. 7A

FIG. 7B

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GVPHCERDDCSLPLSCGSGKESRCCSRC.....TAHRRPAPETRTDPEL 865
|:::| |::|. . ::::| .|||.::| :...|||. .:
GITQCRRQECTGTTCTGSGSKRDRCCCTKCKDANQDEDEKVKSDETRTPWSF 941

FIG. 7C